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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,054	04/19/2004	David R. Elmaleh	62041(51588)	2370

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EXAMINER	
PERREIRA, MELISSA JEAN	
ART UNIT	**PAPER NUMBER**
1618	

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/827,054	ELMALEH ET AL.	
	Examiner	Art Unit	
	Melissa Perreira	1618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/19/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-146* is/are pending in the application.

4a) Of the above claim(s) *See Continuation Sheet* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7,9,11-13,17,44-47,50,52,54,119,123 and 125* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/30/06,3/21/05,8/4/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 5,6,8,10,14-16,18-43,48,49,51,53,55-118,120-122,124 and 126-146.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I claims 1-17,32-43,118,119,122 and 123 in the reply filed on 11/3/06 is acknowledged. Applicant's election of the species 9-[F-18]fluoro-3,4-methyleneheptadecanoic acid in the reply filed on 11/3/06 is acknowledged. Claims 1-146 are pending in the application. Claims 18-31,55-117,120,121 and 126-146 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group (II,IV,V,VI,VII and VIII) there being no allowable generic or linking claim. Claims 5,6,8,10,14-16,32-43,48,49,51,53,118,122 and 124 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species. Applicant's timely traversal of the restriction (election) requirement in the reply filed on 11/3/06 with regards to groups I-VII is acknowledged. The argument on the grounds that the radioactively labeled analogs of group I necessarily encompasses the analogs of groups III is found to be persuasive since this analog contains a similar saturated fatty acid backbone chain having a cyclopropyl substituent, it is considered to be encompasses by the analogs of group I and the restriction requirement is withdrawn with regard to group III. Groups II,IV and V contain a different fatty acid backbone chains. For example, group II contains a 4 or 6-memebered ring substituent within the backbone chain, group IV contains an unsaturated fatty acid backbone chain and group V contains an external unsaturated substituent on the fatty acid backbone chain. These analogs are all different and would exhibit different physical and chemical properties which would require multiple searches

which would cause a burden of search for the office. In regards to the methods of groups VI,VII and VIII the method of measuring blood flow, for example perfusion can be accomplished via ultrasound and gas filled liposomal microbubbles. It is not necessary to utilize radioactively labeled analogs of a fatty acid. Therefore, the method would require a more extensive search of gas-filled liposomal microbubbles and would generate a burden of search for the office. The method of measuring metabolism (group VII) in a subject can be accomplished by administering a psychoactive compound to measure cerebral metabolism via PET, requiring a search of such compounds in addition to radioactively labeled fatty acid analogs and would generate a burden of search for the office. Group VIII, the method of synthesizing radioactively labeled fatty acid compounds of the instant claims. **Applicant does not address the errors in the restriction/election of species requirement with regards to group VIII**, therefore it is maintained for reasons of record. The restriction requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

2. The information disclosure statements filed 8/4/04 and 6/30/06 fail to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein and has been lined through has not been considered. Applicant is advised that the date of any re-submission of any

item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

3. The information disclosure statements filed 8/4/04, 3/21/05 and 6/30/06 contain minor informalities, such as the class and subclass is not listed for the patents or foreign patent publications to be considered.

Claim Rejections - 35 USC § 112

4. Claims 1-4,7,9,12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The instant claims are confusing, as they do not describe what type of radioactive label is to be utilized or where the radioactive label is to be substituted on the fatty acid analog of the given formula.

5. Claims 11 and 54 recite the limitation "said radioactive isotope" in regards to claims 1 and 44 respectively. There is insufficient antecedent basis for this limitation in the claim. The instant claims 1 and 44 do not disclose a radioactive isotope.

Claim Rejections - 35 USC § 102

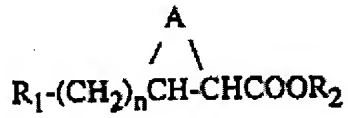
6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4,7,9,11-13,17 and 119 are rejected under 35 U.S.C. 102(b) as being anticipated by Elmaleh (WO97/19705).

8. Elmaleh (WO97/19705) teaches a fatty acid imaging agent containing a radionuclide in spatial proximity to the stereocenter (cyclopropyl substituent) along the carbon chain of the formula I (below) (p4, lines 19-30).



I

R_1 may be hydrogen, fluorine, aryl or substituted aryl, vinyl, substituted vinyl, etc. which encompasses those of the instant claims. R_2 may be hydrogen, alkyl, amine, etc., A is selected from the group methylene, oxygen, sulfur, nitrogen and n is greater than 10, these limitations also encompass those of the instant claims. The A (methylene) substituent is bonded to the fatty acid backbone chain at the C2,C3 positions. Administration of these radioactively labeled fatty acid imaging agents (above) allows for imaging the cardiovascular (heart) tissue and detecting the accumulation of the imaging agent in the cardiovascular (heart) tissue or a heart lesion by PET (p5, lines 14-24; p16, line 3) wherein detection of a heart tumor indicates a region of enhanced metabolism at the site of the tumor (p19, lines 4-8). The radionuclides suitable for use in PET are ^{123}I, ^{18}F, etc. and may be covalently bonded to an atom of the fatty acid moiety (p16, lines 3-6). Claims 1-4,7,9,11-13,17 are directed to a radioactively labeled analog of a fatty acid containing an organic substituent, for

example cyclopropyl. Since Elmaleh (WO97/19705) anticipates the claimed composition containing a cyclopropyl organic substituent, the properties of such a claimed composition are anticipated by the prior art teachings, since the properties, namely the "organic substituent causes the analog to be metabolically trapped in the tissue by permitting the occurrence of the first beta-oxidation step in which the carbon atom to which the organic substituent is bonded etc..." and the "organic substituent reduces metabolic hydroxylation of said analog", are inseparable from its composition. Therefore, if the prior art teaches the composition, then the properties are also taught by the prior art. In re Spada, 911 F.2d 705, 709, 15 USPQ 1655, 1658 (Fed. Cir. 1990.) See MPEP 2112.01. The burden is shifted to Applicant to show that the prior art product does not possess or render obvious the same properties as the instantly claimed product.

It is respectfully pointed out that instant claims 2 and 17 are product-by-process limitations. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed Cir. 1985). See MPEP 2113.

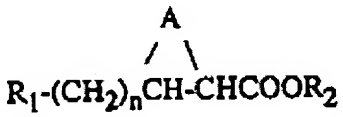
Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

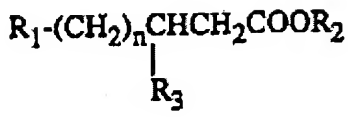
10. Claims 1-4,7,9,11-13,17,44-47,50,52,54,119,123 and 125 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elmaleh (WO97/19705) in view of Knust et al. (US 4,323,547).

11. Elmaleh (WO97/19705) discloses a fatty acid imaging agent containing a radionuclide in spatial proximity to the stereocenter (cyclopropyl substituent) along the carbon chain of the formula I (below) (p4, lines 19-30).



I

R_1 may be hydrogen, fluorine, aryl or substituted aryl, vinyl, substituted vinyl, etc. which encompasses those of the instant claims. R_2 may be hydrogen, alkyl, amine, etc., A is selected from the group methylene, oxygen, sulfur, nitrogen and n is greater than 10, these limitations also encompass those of the instant claims. The A (methylene) substituent is bonded to the fatty acid backbone chain at the C2,C3 positions. Elmaleh also discloses a fatty acid imaging agent containing a radionuclide of the formula II (below) (p4, lines 7-18).



II

R_1 may be hydrogen, fluorine, iodoaryl, iodoallyl, etc. which encompasses those of the instant claims. R_2 may be hydrogen, alkyl, amine, etc., R_3 is selected from the group halide, hydrogen, etc. and n is greater than 12, these limitations also encompass those of the instant claims. Administration of these radioactively labeled fatty acid imaging agents (above) allows for imaging the cardiovascular (heart) tissue and detecting the accumulation of the imaging agent in the cardiovascular (heart) tissue or a heart lesion by PET (p5, lines 14-24; p16, line 3). The detection of a heart tumor indicates a region of enhanced metabolism at the site of the tumor (p19, lines 4-8). The radionuclides suitable for use in PET are positron emitters; ^{123}I, ^{18}F, etc. which may be covalently bonded to an atom of the fatty acid moiety (p16, lines 3-6).

12. Knust et al. (US 4,323,547) discloses fatty acids labeled with radioactive isotopes and the methods of making and using these analogs, such as the method of investigating the kinetics of heart muscle exchange, i.e. myocardial metabolism (column 1, lines 6-10). It is discloses that the pickup of a ϖ-F-fatty acid is greater than that of a ϖ-iodo-fatty acid: with ϖ-^{18}F-heptadecanoic acid a rapid pickup of a maximum of about 40%/g heart is found with heart muscle (column 1, lines 38-42). This advantageous maximum pickup is accompanied by a delayed elimination as is desired for radiographic studies which makes these positron emitting ϖ-^{18}F- labeled fatty acids especially useful for myocardial investigations (column 1, lines 43-48). Centrally labeled or midsubstituted ^{18}F- labeled fatty acids having 10-20 carbon atoms in the carbon chain

are also effective in the investigations of the kinetics of heart muscle exchange but known α-^{18}F- labeled fatty acids are less effective than the ϖ-^{18}F- labeled fatty acids with regards to maximum enrichment in the myocardium (column 2, lines 6-10 and 25-36).

13. At the time of the invention it would have been obvious to one ordinarily skilled in the art to utilize a ^{18}F-heptadecanoic acid as disclosed by Knust et al. (US 4,323,547) for the carbon backbone chain of the fatty acid disclosed by Elmaleh (WO97/19705) to incorporate the advantageous properties of the ^{18}F-heptadecanoic acid, such as the maximum pickup/incorporation into heart of tumor tissue and delayed release which has not been found to be attainable with various known preparations of other radioactively labeled fatty acid analog, such as ^{123}I-substituted fatty acid analogs. Both Elmaleh (WO97/19705) and Knust et al. (US 4,323,547) disclose various points of attachment of the radioisotope (^{18}F) along the carbon chain of the fatty acid. For example, radionuclides suitable for use in PET are positron emitters; ^{123}I, ^{18}F, etc. which may be covalently bonded to an atom of the fatty acid moiety analog centrally labeled or midsubstituted (Elmaleh) and centrally labeled or midsubstituted ^{18}F- labeled fatty acids having 10-20 carbon atoms in the carbon chain were examined by Knust et al. It is also very obvious to one ordinarily skilled in the art to vary a substituent position along the chain of a molecule to compare the chemical and physical properties of such analogs.

14. Claims 1-4,7,9,11-13,17 are directed to a radioactively labeled analog of a fatty acid containing an organic substituent, for example cyclopropyl. Since the combined disclosures of Elmaleh (WO97/19705) and Knust et al. (US 4,323,547) renders the

claimed composition obvious, the property of such a claimed composition will also be rendered obvious by the prior art teachings, since the properties, namely the "organic substituent causes the analog to be metabolically trapped in the tissue by permitting the occurrence of the first beta-oxidation step in which the carbon atom to which the organic substituent is bonded etc..." and the "organic substituent reduces metabolic hydroxylation of said analog", are inseparable from its composition. Therefore, if the prior art teaches the composition or renders the composition obvious, then the properties are also taught or rendered obvious by the prior art. In re Spada, 911 F.2d 705, 709, 15 USPQ 1655, 1658 (Fed. Cir. 1990.) See MPEP 2112.01. The burden is shifted to Applicant to show that the prior art product does not possess or render obvious the same properties as the instantly claimed product.

It is respectfully pointed out that instant claims 2,17 and 45 are product-by-process limitations. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed Cir. 1985). See MPEP 2113.

Conclusion

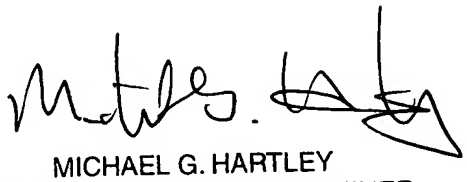
No claims are allowed at this time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Perreira whose telephone number is 571-272-1354. The examiner can normally be reached on 9am-5pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Hartley can be reached on 571-272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MP
December 4, 2006



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SUPERVISORY PATENT EXAMINER